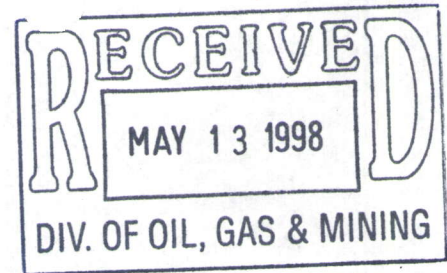


ROBERT E COVINGTON
CERTIFIED PROFESSIONAL GEOLOGIST NO. 1705
P.O. BOX 1845
VERNAL, UTAH 84078



PHONE (801) 789-3233
FAX (801) 789-4560

May 11, 1998

Pete Sokolosky, Geologist
Bureau of Land Management
Vernal District Office
170 South 500 East
Vernal, UT 84078

Re: U.S. Gilsonite Lease U-0122694
Tom Taylor Mine, Road Realignment & Upgrade
Uintah County, Utah

Dear Pete:

I have enclosed for your review the "Proposed Road Upgrade" done by Uintah Engineering & Land Surveying dated 5/11/98. The report should answer most of the questions that you have inquired about in your letter of February 26, 1998. The new study shows that total disturbance area will be 1.35 acres. With reference to the time involved in this work, it is estimated that it will take from two to three weeks to complete the project. Work will commence as soon as the approval can be obtained from your office.

There is a 100' stretch of road right at the present sharp turn near the base of the hill that will require drilling and blasting of the cap rock. The rest of the road will be worked with a D-7 dozer and grader.

Please refer to the cross profiles and engineering plan for details on the road cut and width.

With reference to your question regarding the road status, we herewith state that the road under discussion to be improved will not be reclaimed at the cessation of mining because it is an existing Uintah County class D road.

If you have any comments or questions, please let me know at your earliest convenience.

Very truly yours,

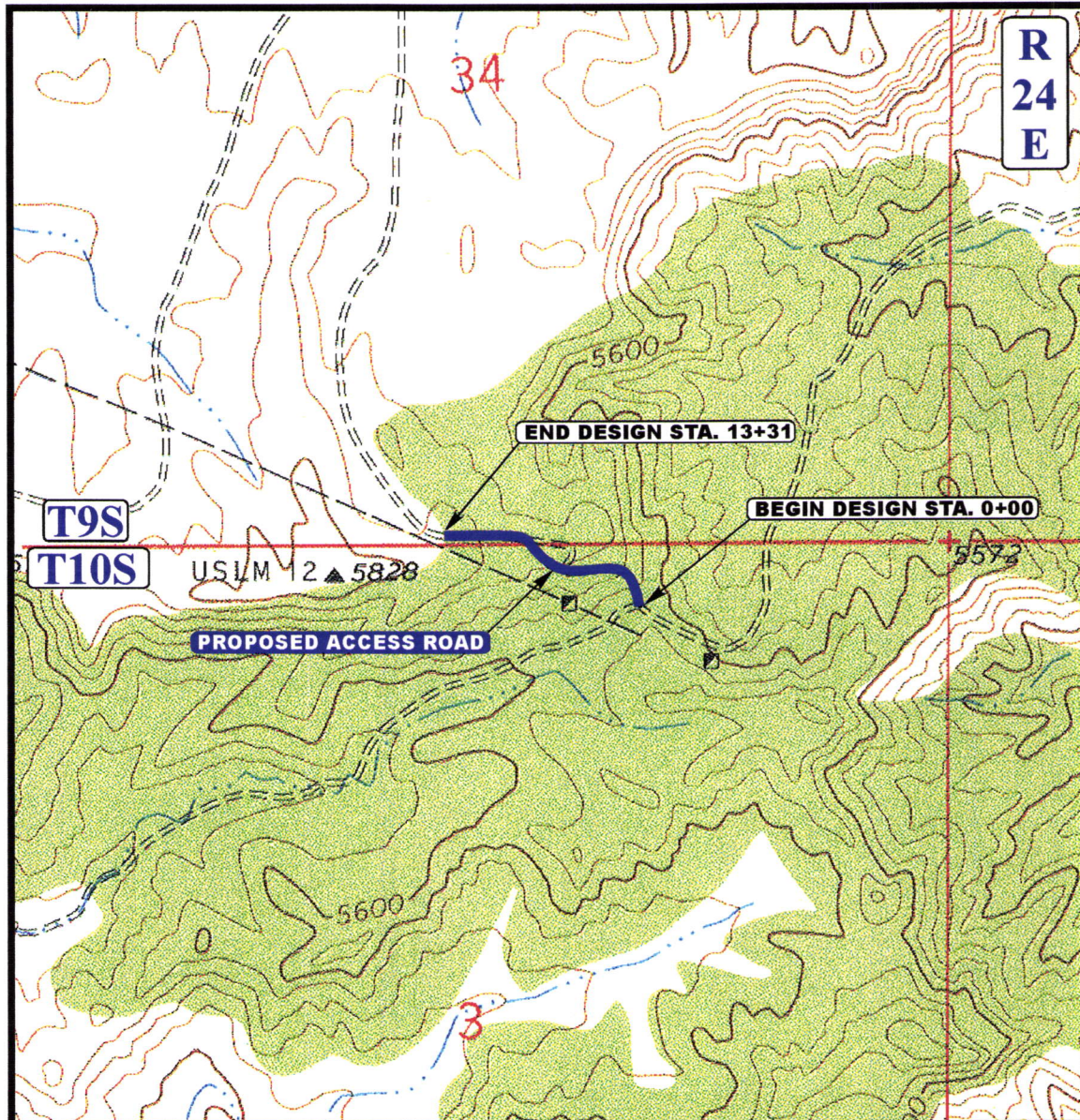
A handwritten signature in cursive script that reads "Robert E. Covington".

Robert E. Covington, Consultant for
ZIEGLER CHEMICAL & MINERAL CORP.

CC: Gordon S. Ziegler, Jr..

ZIEGLER CHEMICAL & MINERAL CORP.

PROPOSED ROAD UPGRADE



LOCATED IN UTAH COUNTY, UTAH
SECTION 3, T10S, R24E, S.L.B. & M.



Uintah Engineering & Land Surveying
85 South 200 East Vernal, Utah 84078
(435) 789-1017 * FAX (435) 789-1813

**TOPOGRAPHIC
MAP**

5 11 98
MONTH DAY YEAR

SCALE: 1" = 1000' DRAWN BY: C.G. REVISED: 00-00-00

1
TOPO

ZIEGLER CHEMICAL & MINERAL CORP.

PROPOSED ROAD UPGRADE

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| CULVERT DETAIL | SHEET | 5 |
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| PLAN & PROFILE | SHEET(S) | P-1- P-2 |
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| EARTHWORK VOLUMES & DISTURBANCE AREA | SHEET(S) | E-1- E-2 |



GENERAL NOTES:

Current B.L.M. standards draw on standards set forth in the B.L.M. Manual Section 9113-Roads. All construction practices must conform to the current B.L.M. standards.

All materials for construction of the complete project including but not limited to rip-rap, water for dust control and compaction, culverts, bedding materials for culverts, surface course gravel, signs, etc. are to be provided by the contractor at his bid price unless other arrangements are made.

Uintah Engineering and Land Surveying assumes no liability written or implied as to the location of pipelines or cable lines in the vicinity of this road design. Blue stakes (Public lines) and or the owner of the transportation line (Private/Corporate lines) must be contacted for identification and location before construction begins. Transportation lines that may be identified on these plans may not be the only transportation lines in the vicinity of the road. These plans are not intended to be used to identify the location of transportation lines. Extreme caution shall be used when constructing road near or over transportation lines.

EXPLANATIONS:**PLAN & PROFILE SHEETS**

Plan & Profile sheets show the horizontal and vertical alignment of the road, sign placement if any, turnout placement if any, estimated culvert placements and sizes, estimated wing ditches, horizontal and vertical curve data, and the percent super for construction of horizontal curves.

CROSS SECTION SHEETS

C/L Stakes - These stakes have been set on the ground with stations written thereon. The cut(C) or fill(F) shown on the cross section sheets show one of the following:

- A. Where the road centerline has not been shifted left or right during design, the cut(C) or fill(F) is from the preconstruction ground at the C/L stake - to the finished road C/L at the top of the sub-grade.
- B. Where the road C/L is to be shifted left or right from the original C/L stake, The cut(C) or fill(F) shown on the plans is from the preconstruction ground at the new road C/L*, which is offset left or right from the original C/L stake by the distance shown - to the finished road C/L at the top of the sub-grade.

Finished Cross Section Elevations & Catch Points - The finished sub-grade C/L elevation is shown at the C/L on each Cross Section. Catch points are shown at each side of the Finished Cross Section. They are marked with a distance left or right of the C/L with their elevation. Other elevations such as the bottom of ditch or the edge of fill subgrades are also shown.

Road Widths - Where Curve-Widening, Fill-Widening, & Turnouts are required approximate widths have been indicated. These widths supersede the Typical Cross Section.

* - In certain areas the finished road has been moved left or right after the C/L Stakes were set. This was done during the design of the road to maintain smooth horizontal curves or to avoid an existing obstacle. The distance shown at the stake symbol indicates the amount the road is to be moved. The new C/L may or may not be staked on the ground.

SCOPE OF WORK:**SHAPING THE ROADWAY**

The roadway is to be shaped to the dimensions shown on the "Geometric Standards" sheet included in this document. Care shall be given to insure that the travelway width is not less or significantly more than the dimensions given on the "Geometric Standards" sheet. Where turnouts are indicated, the typical section widths shown on the "Geometric Standards" sheet will need to be modified by the amounts shown on the "Typical Turn-out" sheet. On horizontal curves, super-elevations will be constructed to the percentages shown on the plan and profile sheets. One-third of the super transition occurs on the curve and two-thirds on the tangent.

Top soil will be dealt with as follows:

Top soil is to be peeled back during construction. Some over-excavation of cut slopes and bar ditches will provide needed material for road construction. Top soil will then be spread back over the cut and fill slopes and bar ditches.

The road shall have a crown as shown on the "Geometric Standards" sheet to insure that water will drain off of the travelway surface.

INSTALLING CULVERTS AND WING DITCHES

There is an **estimate** of the number and the size of the culverts to be placed on the road. There may need to be some field calls made by the contractor, BLM, and/or Inspector/Engineer to the placement of the culverts and wing ditches.

The contractor and/or Inspector/Engineer will determine the length of the wing ditches at the time of construction. A standard wing ditch cross section detail is included on the "Geometric Standards" sheet. Wing ditches are to be constructed with sufficient slope so that water will exit the downstream side and not pond in the ditch.

All Culverts shall be of sufficient strength to support an HS-20 loading or heavier. Check with manufacturer for information about minimum cover and load ratings. In no case shall cover over culverts be less than 12". Culvert lengths are estimated on the plans but there may need to be some adjustments made to the lengths of the culverts during construction.

Where multiple culverts are specified on the plans, there shall be no less than the following clearance between the culverts.

- Up to 24 inch 12 inch
- 24 to 72 inch ½ Diameter of Pipe
- 72 inch and over 36 inch

Rip-Rap, if needed, will be sized dependant upon pipe diameter as shown below:

All Rip-Rap stone shall be graded with a sufficient amount of smaller stones uniformly distributed throughout.

- 18 - 24 inch diameter pipe.... At least 60 percent of the stones shall be 8" diameter or larger.
- 30 - 60 inch diameter pipe... At least 60 percent of the stones shall be 12" diameter or larger.

PLACEMENT OF SURFACE GRAVEL

The following surface gravel specification is to be used if there is not an agreed-upon gravel surface for the area. Agreements may have been made during the transportation planning process. If there is another gravel specification to be used, the specified gravel will be placed at the compacted depth and taper shown on the typical cross section instead of the following.

An appropriate gravel surface will be placed on the road to the depth and taper specified on the "Geometric Standards" sheet.

3" minus pit run gravel can be used to surface resource roads. (The 3" minus pit run gravel should be an AASHTO M145-49 A-1-a soil).

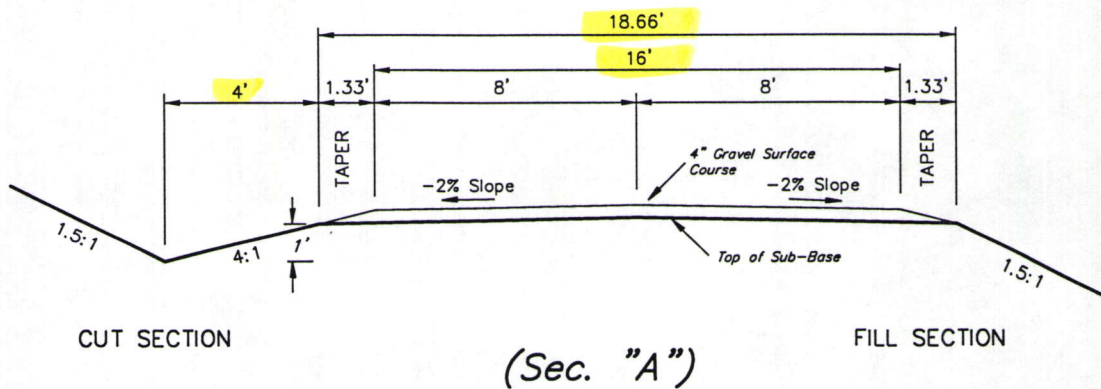
No gravel will be placed on the road until the field Inspector/Engineer has approved the section of sub-grade where the gravel is to be placed.

All turnouts are to be graveled to the same depth and side taper as the travel surface.

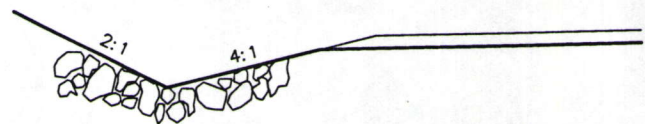
GEOMETRIC STANDARDS FOR BUREAU ROADS

| FUNCTIONAL CLASSIFICATION | EST 20 YR. ADT | TERRAIN | DESIGN SPEED | | TRAVELWAY WIDTH | | MAXIMUM GRADE | |
|---------------------------|----------------|-----------------|--------------|------|-----------------|------|---------------|------|
| | | | PREF. | MIN. | PREF. | MIN. | PREF. | MAX. |
| Resource | Less than 20 | LEVEL & ROLLING | 30 | | 14 | | 8 | 10 |
| | | Mountainous | 15 | | 14 | | 8 | 16 |

TYPICAL CROSS SECTION
(for Proposed Access Road)



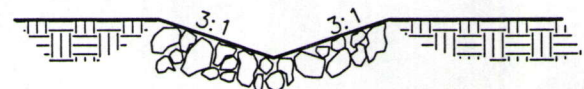
SUB-GRADE TO BE COMPACTED
TO APPROPRIATE DENSITY AS
SPECIFIED BY ENGINEER



RIP RAP IN BAR DITCH
(Only Where Specified)



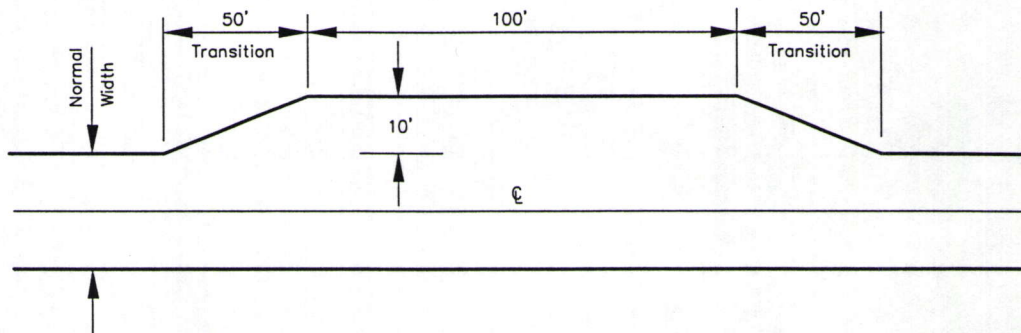
WING DITCH



RIP RAP IN WING DITCH
(Only Where Specified)

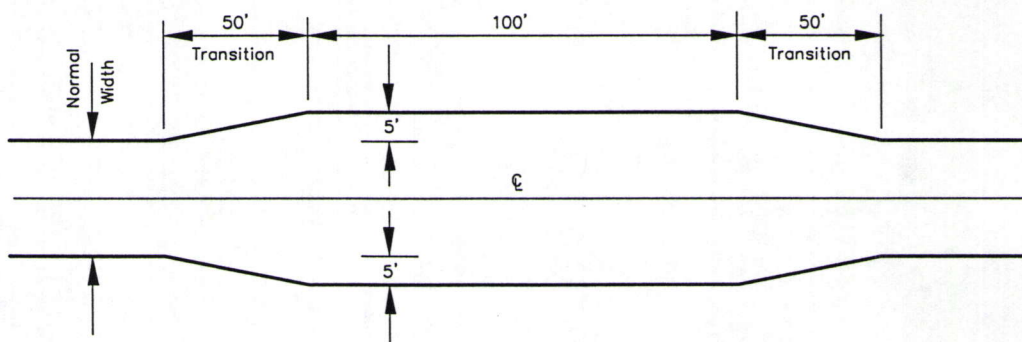
TYPICAL TURN-OUTS

(for Proposed Access Road)



PLAN

TURNOUT-WIDENING ON ONE SIDE

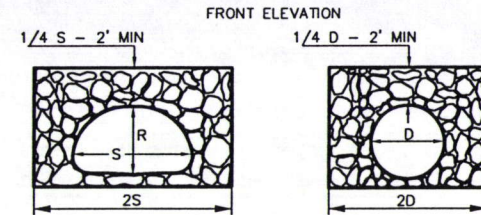
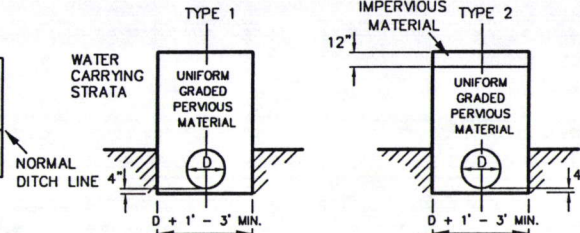
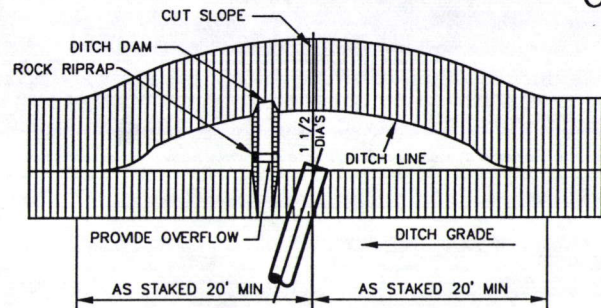


PLAN

TURNOUT-WIDENING ON BOTH SIDES

CULVERT CONSTRUCTION DETAILS

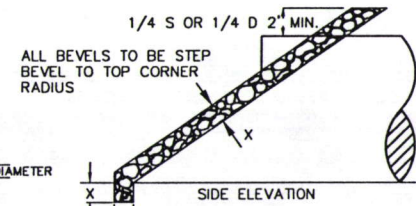
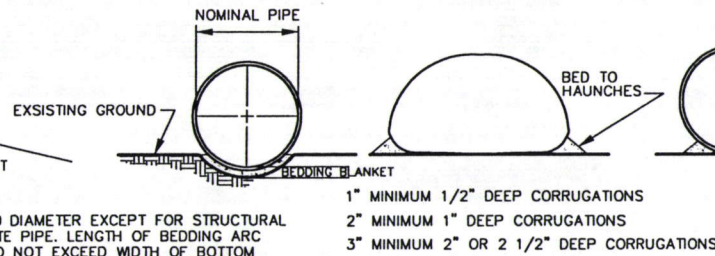
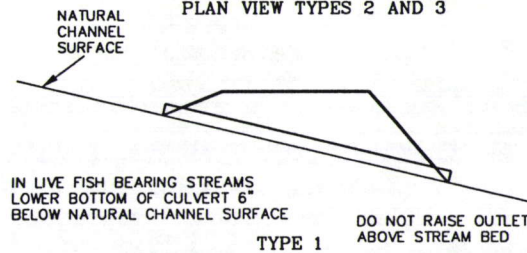
FIGURE



NOTE
IN NARROW CHANNELS ADJUST
RIPRAP TO FIT ORIGINAL
STREAM BANKS.

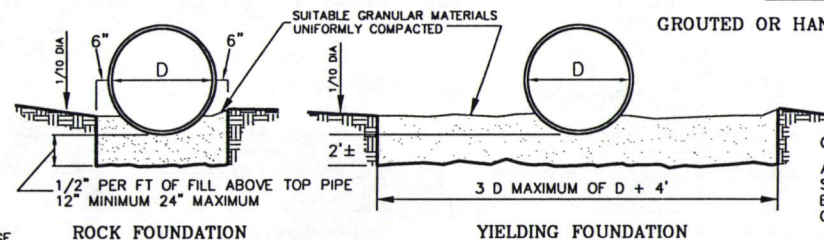
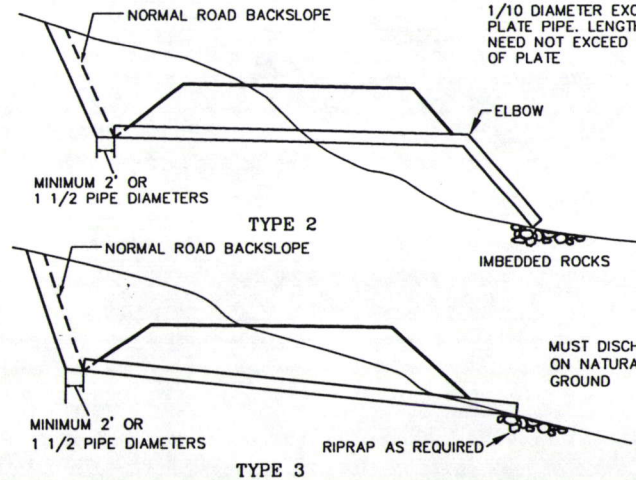
PLACE PERFORATIONS ON LOWER SIDE OF PIPE
LINE AND GRADE TO BE AS GIVEN ON THE DRAWINGS
AS STAKED ON THE GROUND

PERFORATED UNDERDRAINS



VARIES WITH PIPE D OR S

| D OR S | |
|---------------|-----|
| LESS THAN 60" | 12" |
| 60" TO 96" | 18" |
| MORE THAN 96" | 24" |



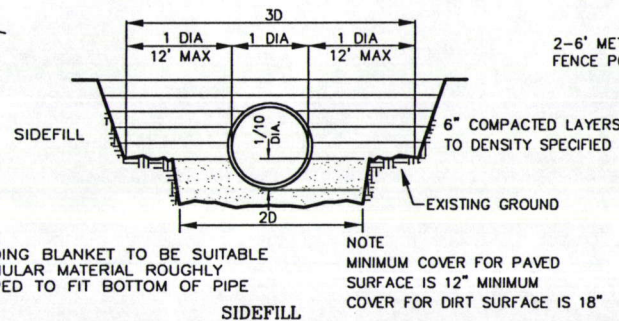
GROUTED OR HAND PLACED RIPRAP HEADWALLS

GENERAL NOTES

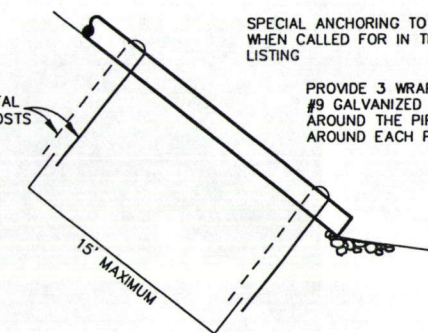
ALL BEVELED PIPES ARE TO HAVE
STEP BEVELS. PIPE ARCHES SHALL
BE BEVELED TO THE TOP OF THE
CORNER RADIUS

SPECIAL ANCHORING TO BE PROVIDED
WHEN CALLED FOR IN THE CULVERT
LISTING

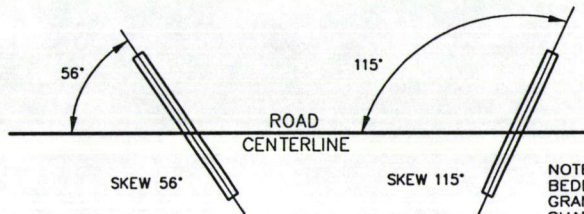
PROVIDE 3 WRAPS OF
#9 GALVANIZED WIRE
AROUND THE PIPE AND
AROUND EACH POST



2-6" METAL
FENCE POSTS



SKREW DIAGRAM



NOTE
BEDDING BLANKET TO BE SUITABLE
GRANULAR MATERIAL ROUGHLY
SHAPED TO FIT BOTTOM OF PIPE

SIDEFILL

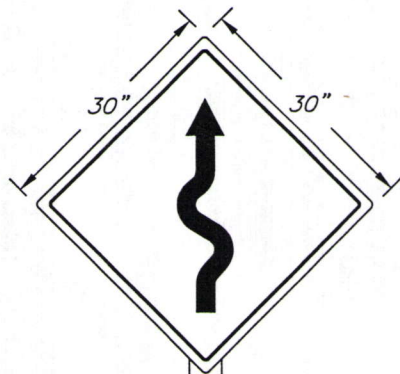
ZIEGLER CHEMICAL
& MINERAL CORP.

SHEET 6

TYPICAL SIGN DETAIL
(for Proposed Access Road)

DATE: 5-11-98

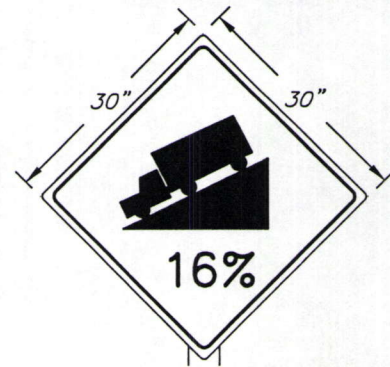
DRAWN BY: D.G.W.



18" X 18"

SIGN # 1 & 2
CURVE SIGN

COLOR
LEGEND - BLACK (Non-Ref)
BACKGROUND - YELLOW (Ref)
POST: 4" x 4" TREATED TIMBER



24" X 18"

MUTCD W7-1b & W7-2b
(ONE REQUIRED)

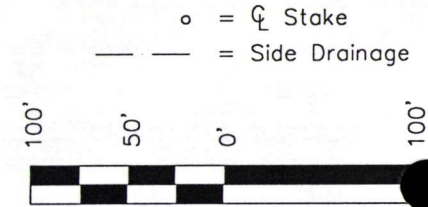
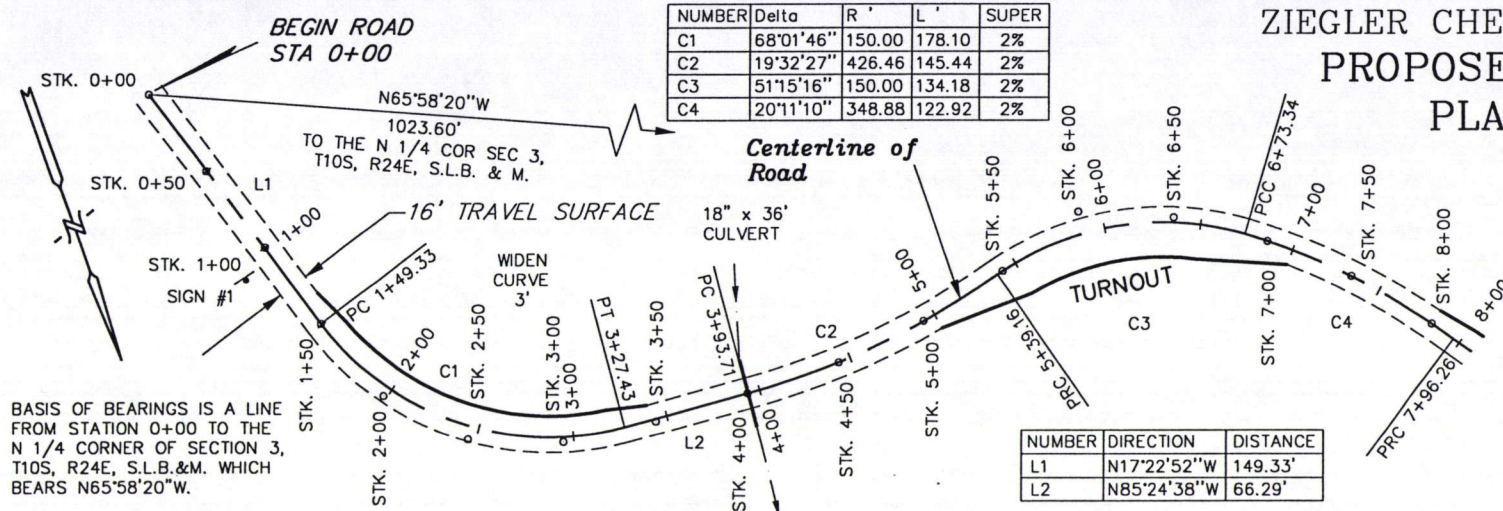
SIGN #3
HILL SIGN

COLOR
LEGEND - BLACK (Non-Ref)
BACKGROUND - YELLOW (Ref)
POST: 4x4 TREATED WOOD

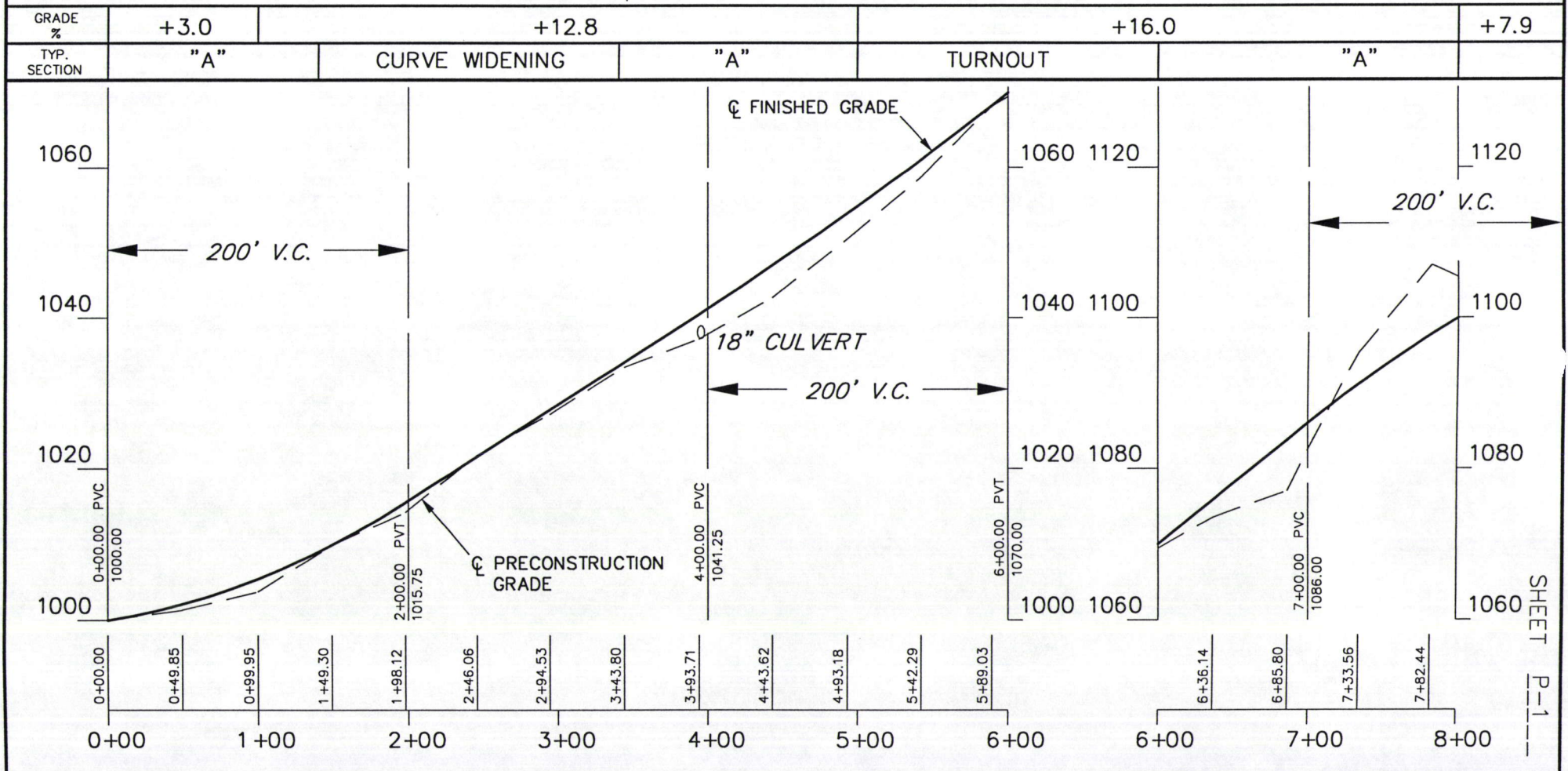
ZIEGLER CHEMICAL & MINERAL CORP. PROPOSED ROAD UPGRADE PLAN & PROFILE

DATE: 5-11-98
Drawn By: C.G.

| NUMBER | Delta | R' | L' | SUPER |
|--------|-----------|--------|--------|-------|
| C1 | 68°01'46" | 150.00 | 178.10 | 2% |
| C2 | 19°32'27" | 426.46 | 145.44 | 2% |
| C3 | 51°15'16" | 150.00 | 134.18 | 2% |
| C4 | 20°11'10" | 348.88 | 122.92 | 2% |

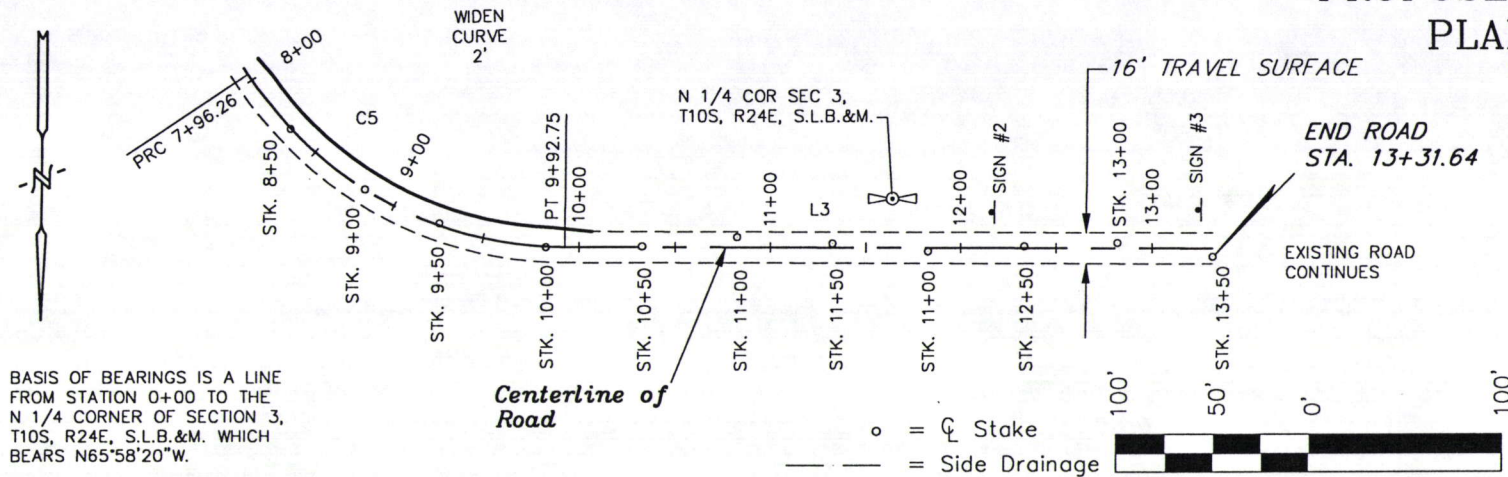


UINTAH ENGINEERING & LAND SURVEYING
85 So. 200 East Vernal, Utah



ZIEGLER CHEMICAL & MINERAL CORP. PROPOSED ROAD UPGRADE PLAN & PROFILE

DATE: 5-11-98
Drawn By: C.G.

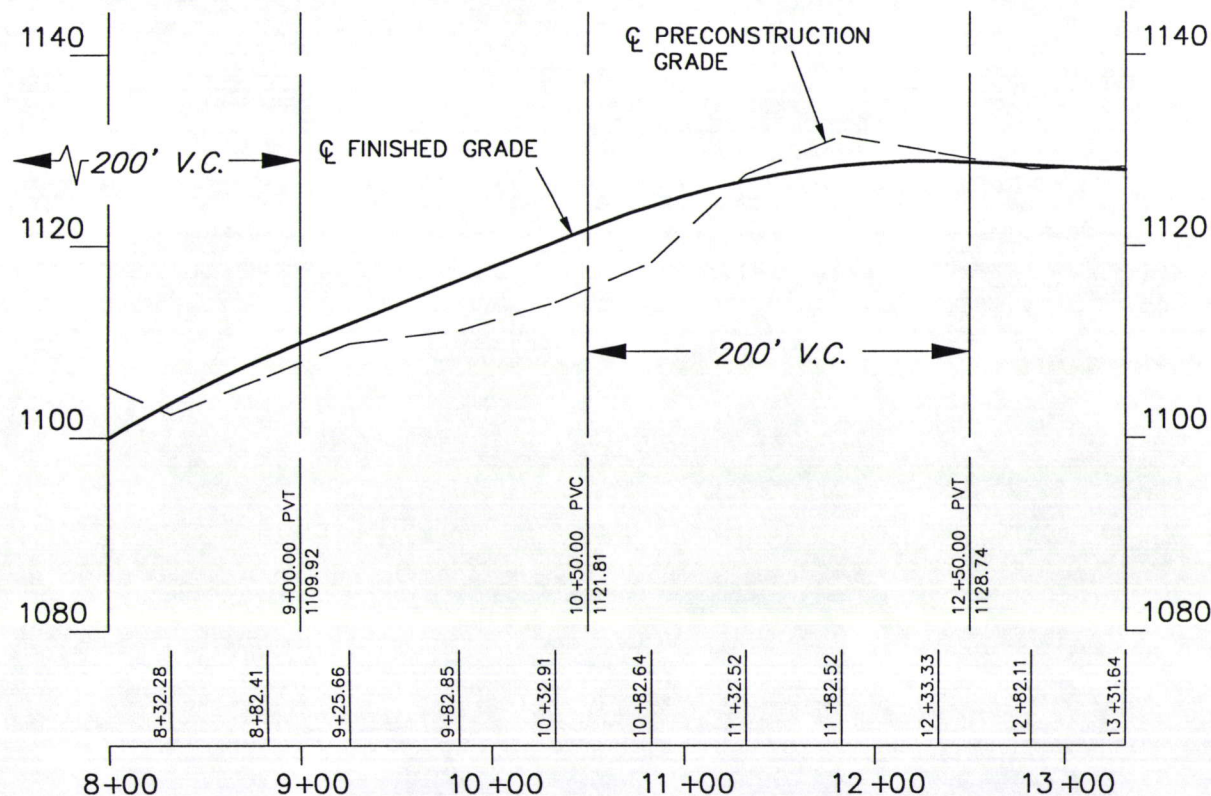


| NUMBER | DIRECTION | DISTANCE |
|--------|-------------|----------|
| L3 | N89°48'09"W | 338.89' |

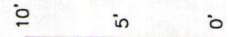
| NUMBER | Delta | R' | L' | SUPER |
|--------|-----------|--------|--------|-------|
| C5 | 56°17'30" | 200.00 | 196.49 | 2% |

UINTAH ENGINEERING & LAND SURVEYING
85 So. 200 East Vernal, Utah

| GRADE % | +7.9 | -1.0 |
|--------------|----------------|------|
| TYP. SECTION | CURVE WIDENING | "A" |

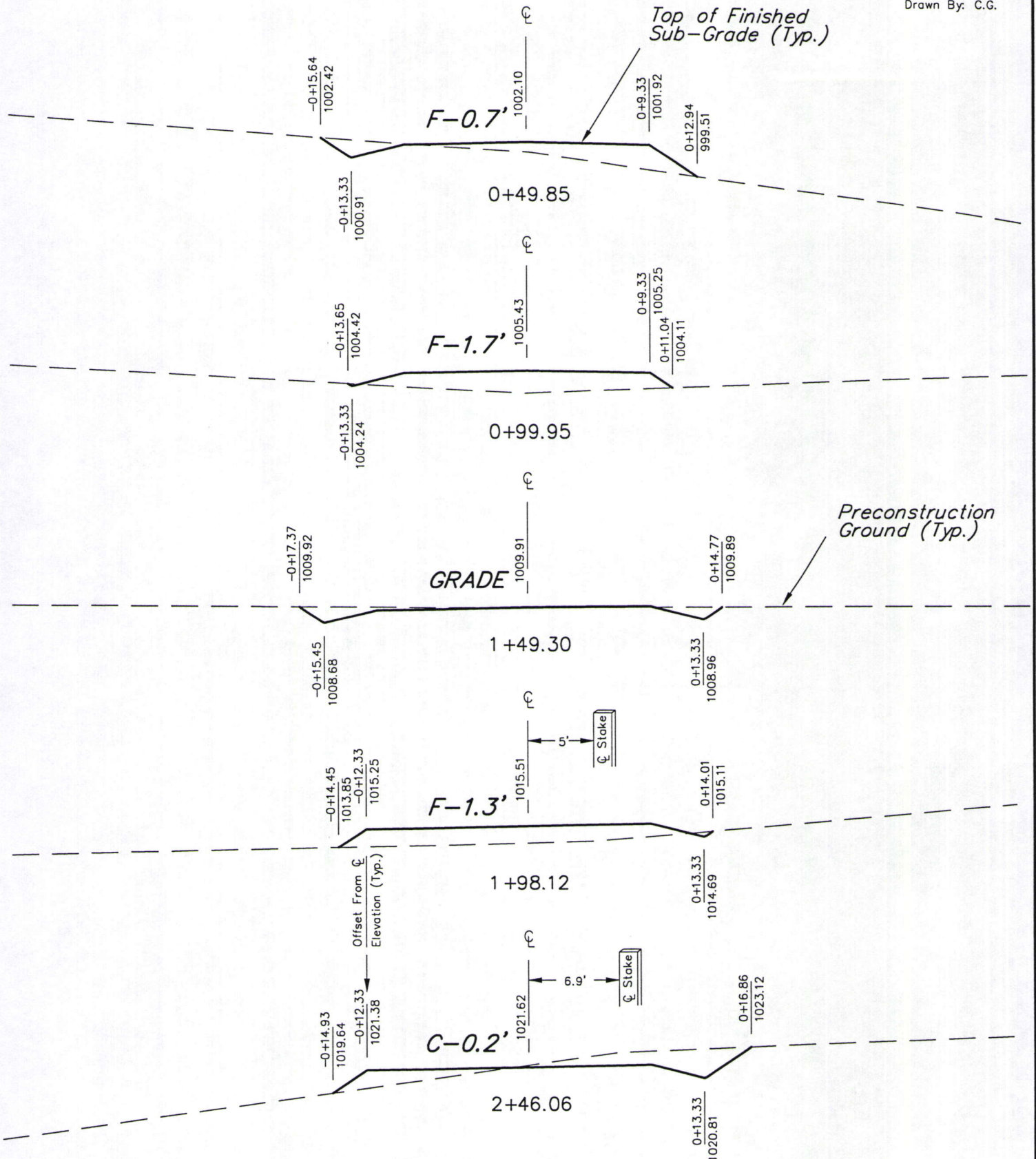


PROPOSED ROAD UPGRADE
CROSS SECTIONS



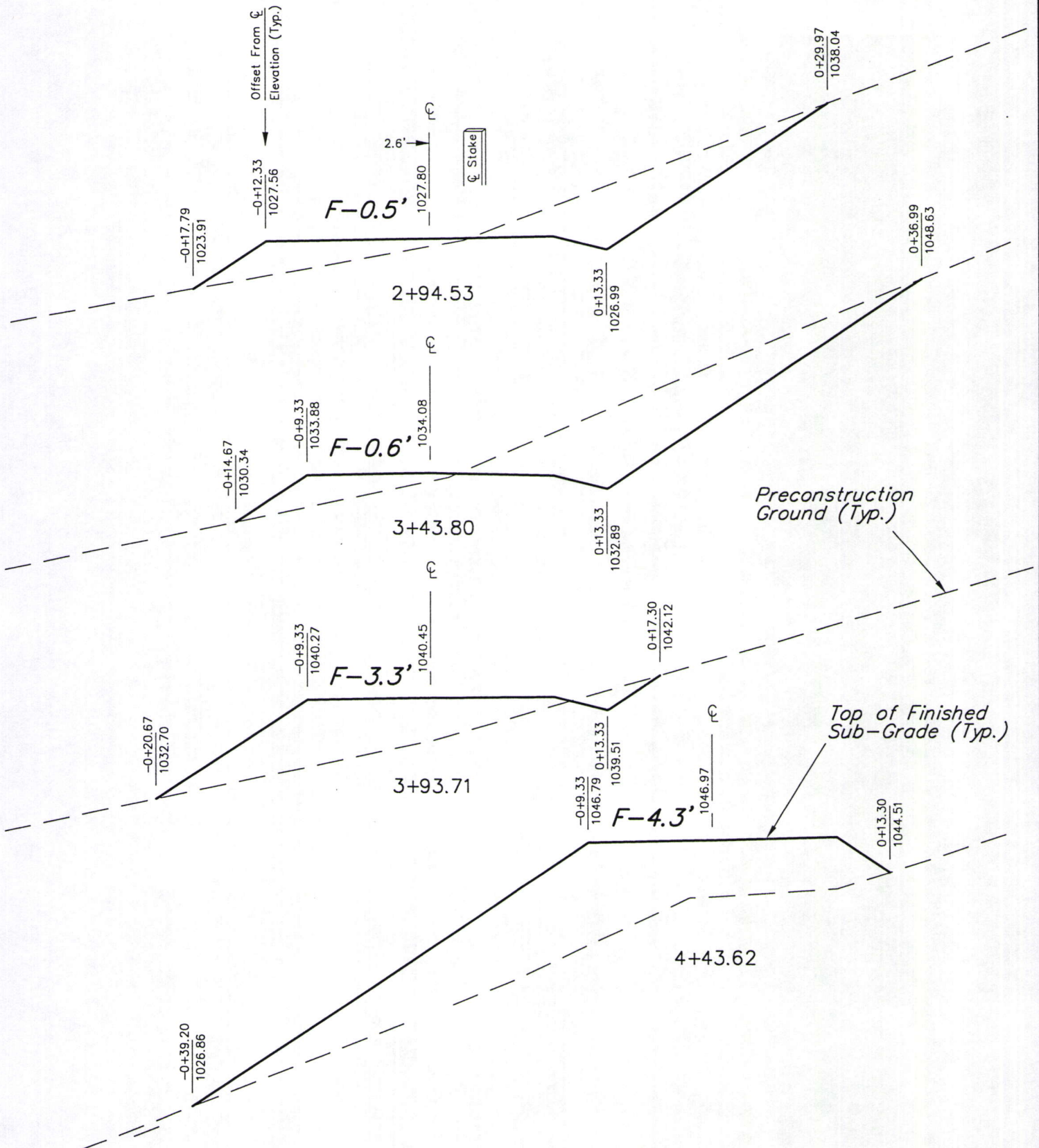
SCALE: HORIZONTAL
& VERTICAL

DATE: 5-11-98
Drawn By: C.G.

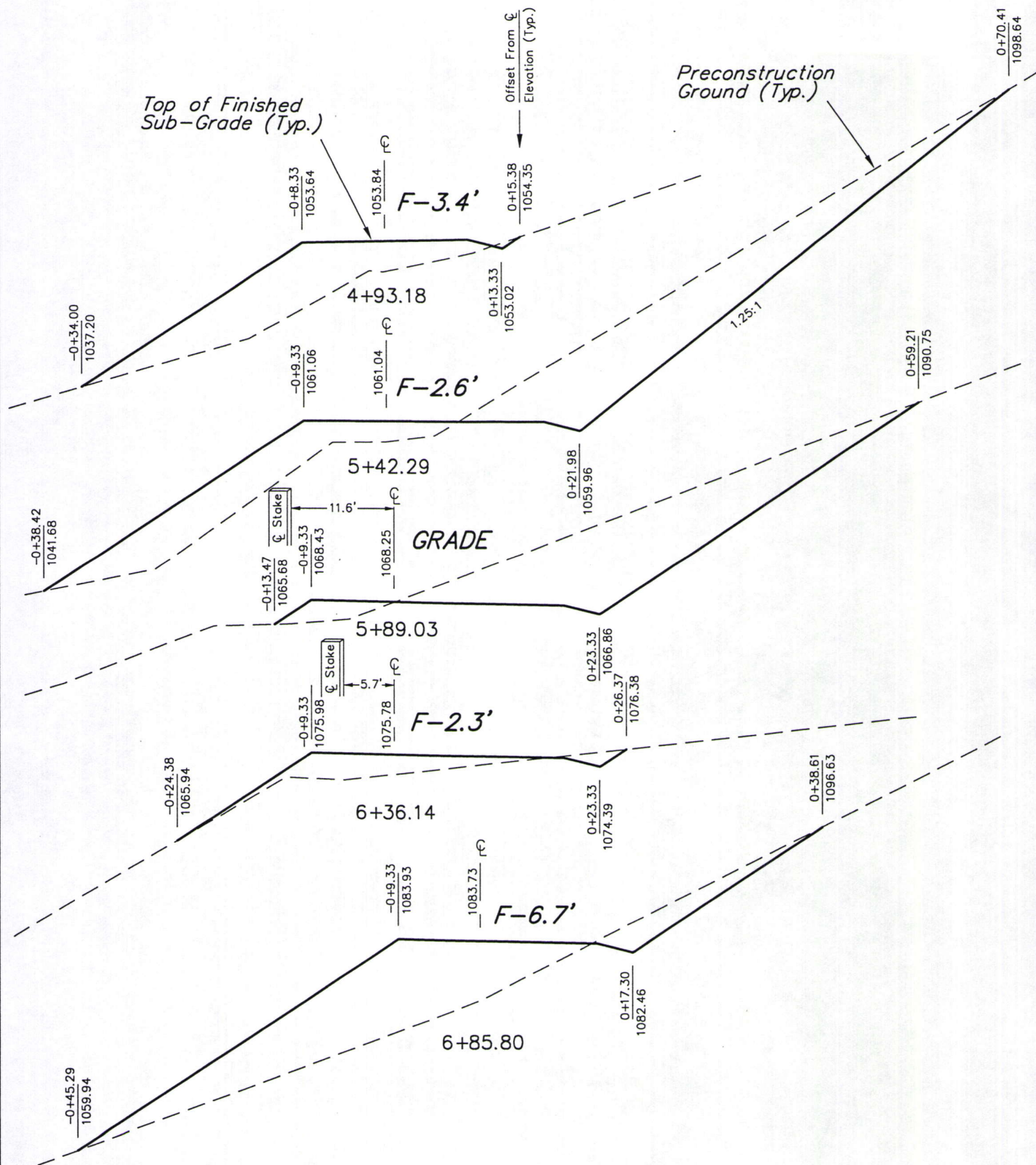


PROPOSED ROAD UPGRADE
CROSS SECTIONS

10' 5' 0'
SCALE: HORIZONTAL
& VERTICAL
DATE: 5-11-98
Drawn By: C.G.

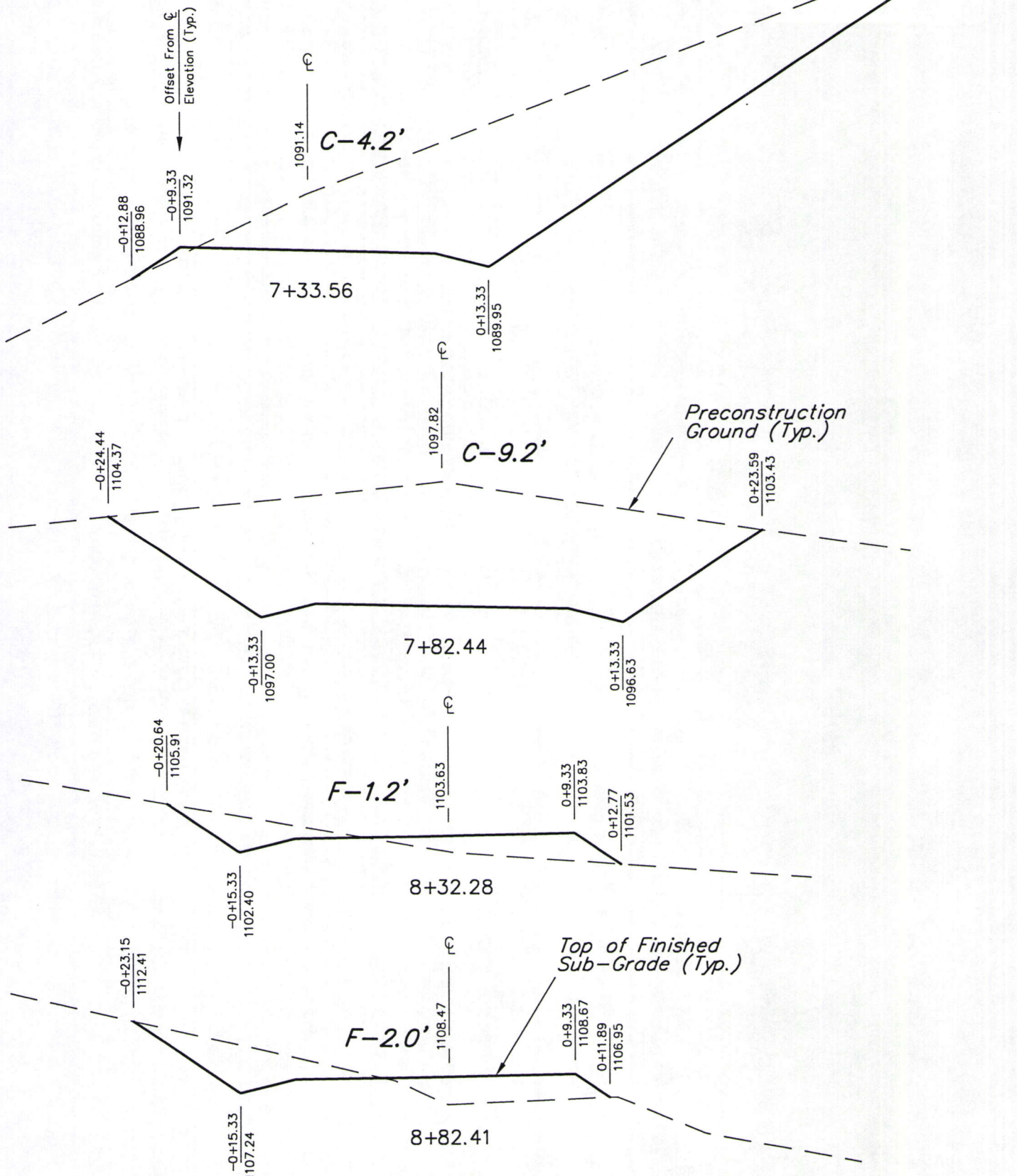


PROPOSED ROAD UPGRADE CROSS SECTIONS



PROPOSED ROAD UPGRADE
CROSS SECTIONS

10' 5' 0'
SCALE: HORIZONTAL
& VERTICAL
DATE: 5-11-98
Drawn By: C.G.

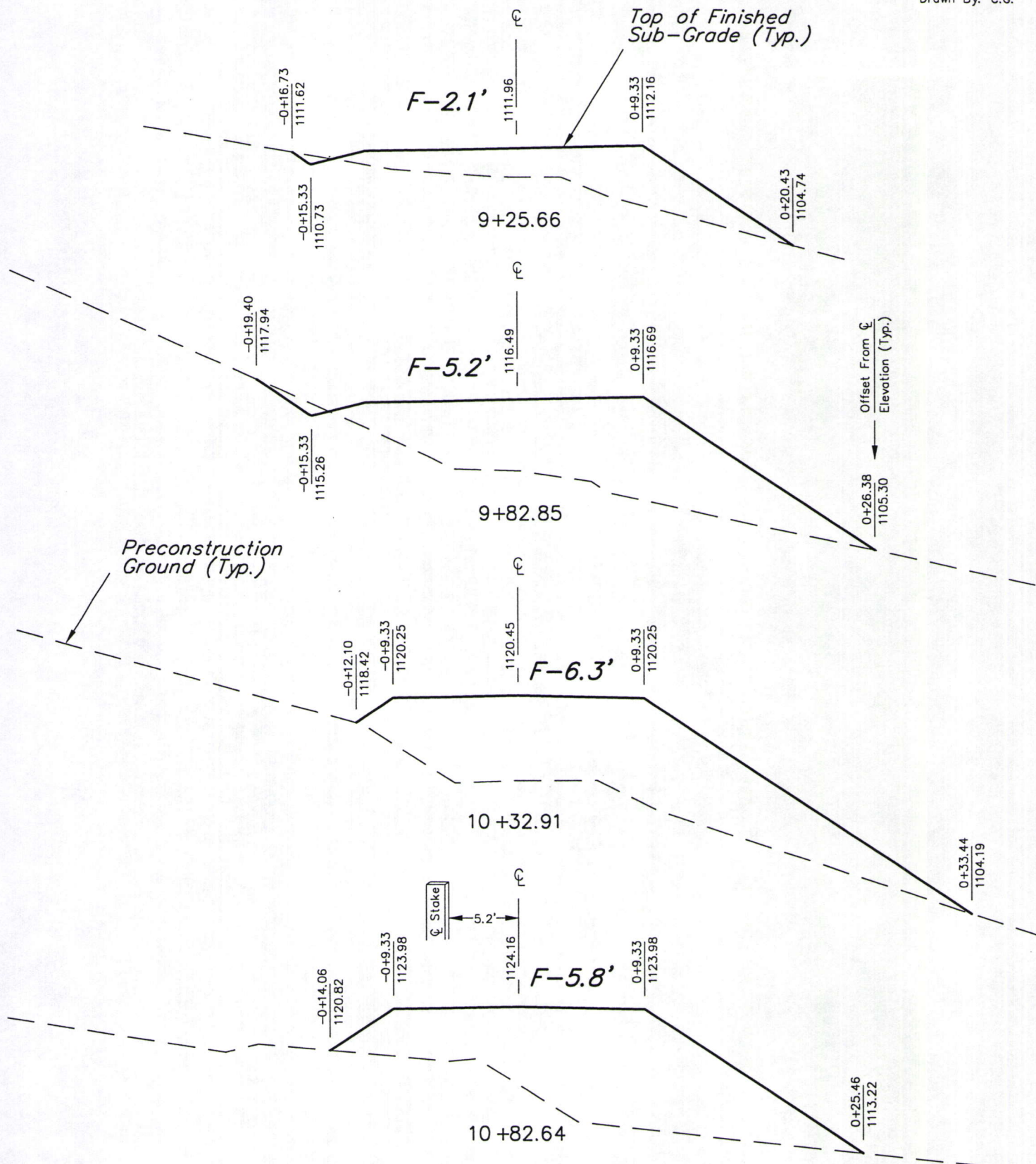


PROPOSED ROAD UPGRADE
CROSS SECTIONS

10' 5' 0'

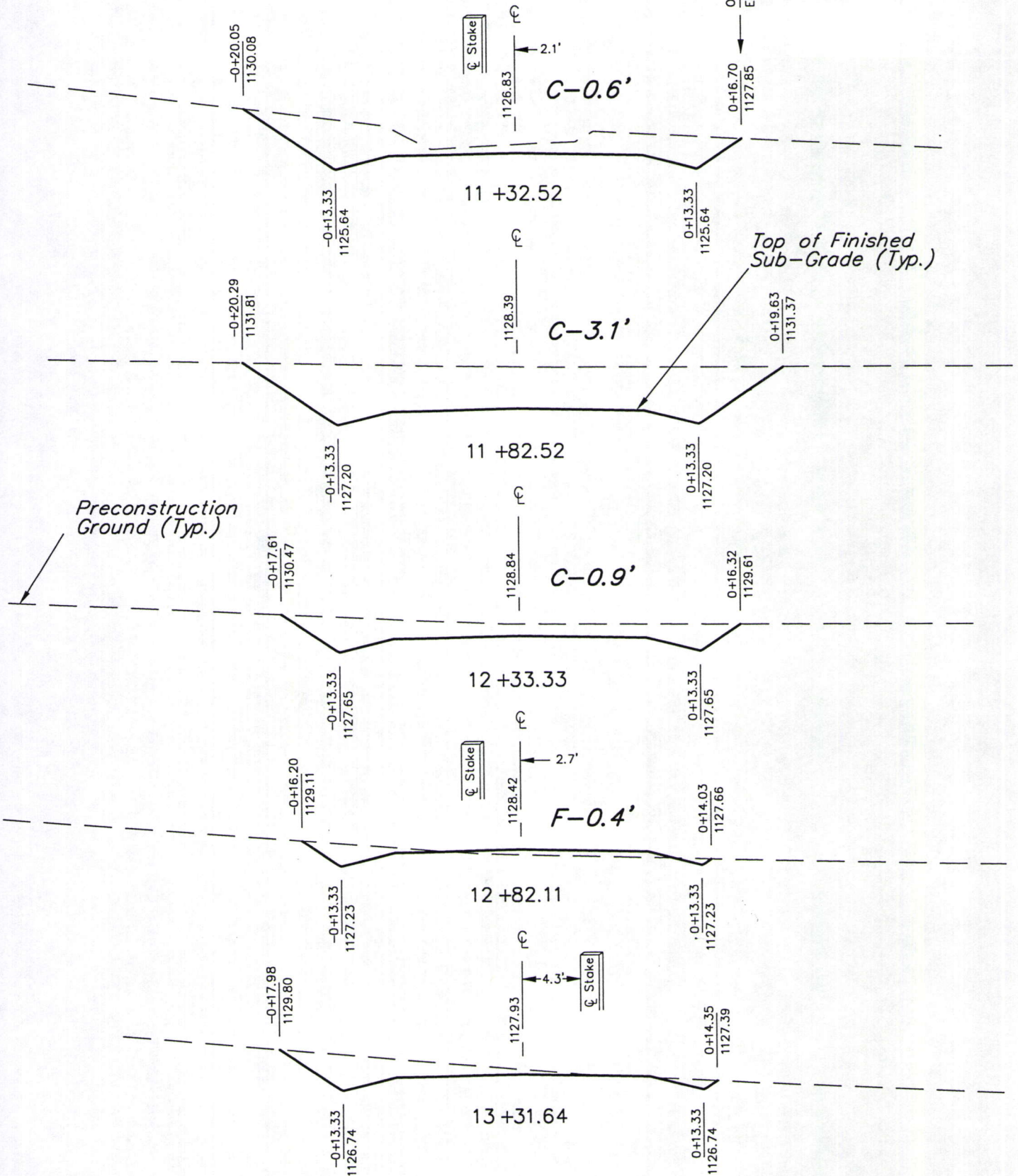
SCALE: HORIZONTAL
& VERTICAL

DATE: 5-11-98
Drawn By: C.G.



PROPOSED ROAD UPGRADE
CROSS SECTIONS

SCALE: HORIZONTAL
& VERTICAL
DATE: 5-11-98
Drawn By: C.G.



DETAIL EARTHWORK FROM STATION 0+ 0.00 TO STATION 13+31.64

VERTICAL SHIFT 0.00 ft
SHRINK FACTOR 90.00 %HORIZONTAL SHIFT 0.00 ft
SWELL FACTOR 110.00 %

| X-SECTION STATION | ---AREA--- CUT | sq yd--- FILL | ---VOLUME cu yd--- CUT | FILL | ---ADJUSTED cu yd--- TOTAL | ACCUM |
|----------------------|-------------------|------------------|---------------------------|--------|-------------------------------|--------|
| 0+ 0.00 | 1.1 | 0.0 | | | | |
| | | | 12.9 | -17.6 | -6.0 | -6.0 |
| 0+49.85 | 0.5 | -2.1 | 4.2 | -44.8 | -41.1 | -47.0 |
| 0+99.95 | 0.0 | -3.3 | 7.1 | -27.2 | -20.8 | -67.8 |
| 1+49.30 | 0.9 | -0.1 | 7.3 | -27.9 | -21.4 | -89.2 |
| 1+98.12 | 0.0 | -3.4 | 15.4 | -35.3 | -21.4 | -110.6 |
| 2+46.06 | 1.9 | -1.0 | 70.1 | -33.4 | 33.0 | -80.9 |
| 2+94.53 | 6.8 | -3.1 | 146.7 | -44.9 | 96.9 | 6.9 |
| 3+43.80 | 11.1 | -2.4 | 96.8 | -99.8 | -12.7 | -6.4 |
| 3+93.71 | 0.6 | -9.6 | 4.7 | -282.5 | -278.3 | -284.7 |
| 4+43.62 | 0.0 | -24.3 | 0.9 | -366.5 | -365.6 | -650.4 |
| 4+93.18 | 0.1 | -20.0 | 632.6 | -313.1 | 284.7 | -394.1 |
| 5+42.29 | 77.2 | -18.2 | 855.8 | -159.5 | 678.6 | 240.7 |
| 5+89.03 | 32.7 | -2.3 | 262.3 | -66.7 | 188.3 | 429.0 |
| 6+36.14 | 0.7 | -6.2 | 46.0 | -336.3 | -294.9 | 101.3 |
| 6+85.80 | 4.8 | -34.4 | 306.1 | -275.1 | 0.5 | 101.8 |
| 7+33.56 | 33.6 | -0.2 | 560.4 | -1.3 | 558.9 | 660.7 |
| 7+82.44 | 35.2 | 0.0 | 307.4 | -20.5 | 284.6 | 945.3 |
| 8+32.28 | 1.8 | -2.5 | 42.0 | -43.8 | -6.0 | 938.7 |
| 8+82.41 | 3.2 | -2.8 | 23.7 | -77.8 | -56.4 | 875.9 |
| 9+25.66 | 0.1 | -8.0 | 3.7 | -259.4 | -256.1 | 591.4 |
| 9+82.85 | 0.3 | -19.2 | 2.3 | -358.9 | -356.9 | 194.9 |
| 10+32.91 | 0.0 | -23.8 | 0.0 | -376.5 | -376.5 | -201.1 |
| 10+82.64 | 0.0 | -21.6 | | | | |

DETAIL EARTHWORK FROM STATION 0+ 0.00 TO STATION 13+31.64

VERTICAL SHIFT 0.00 ft
SHRINK FACTOR 90.00 %

HORIZONTAL SHIFT 0.00 ft
SWELL FACTOR 110.00 %

| X-SECTION STATION | ---AREA--- sq yd--- | | ---VOLUME cu yd--- | | ---ADJUSTED cu yd--- | |
|----------------------|---------------------|-------|--------------------|--------|----------------------|--------|
| | CUT | FILL | CUT | FILL | TOTAL | ACCUM |
| 10+82.64 | 0.0 | -21.6 | | | | |
| | | | 50.0 | -179.5 | -134.5 | -335.7 |
| 11+32.52 | 6.0 | 0.0 | | | | |
| | | | 160.2 | 0.0 | 160.2 | -191.5 |
| 11+82.52 | 13.2 | 0.0 | | | | |
| | | | 151.5 | 0.0 | 151.5 | -55.2 |
| 12+33.33 | 4.7 | 0.0 | | | | |
| | | | 45.2 | -5.0 | 39.6 | -19.5 |
| 12+82.11 | 0.9 | -0.6 | | | | |
| | | | 30.0 | -5.2 | 24.3 | 2.6 |
| 13+31.64 | 2.8 | 0.0 | | | | |

TOTAL EARTHWORK FROM STATION 0+ 0.00 TO STATION 13+31.64

VERTICAL SHIFT 0.00 ft
SHRINK FACTOR 90.00 %

HORIZONTAL SHIFT 0.00 ft
SWELL FACTOR 110.00 %

VOLUMETRIC CUT 3845.1
VOLUMETRIC FILL -3458.3
TOTAL HAUL 81.4 yd-mi

ADJUSTED TOTAL 2.6 (2.6 cu yd EXCESS)

TOTAL DISTURBANCE AREA: 1.35 ACRES

